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EXAMINER	
HOGAN, MARY C	
ART UNIT	PAPER NUMBER
2123	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/828,681	LEE, RUSTY SHAWN
	Examiner	Art Unit
	Mary C Hogan	2123

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *4/9/01*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 April 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This application has been examined.

2. **Claims 1-28** have been examined and rejected.

Claim Interpretation

3. **Claim 4** is directed to: the generated code consisting of instructions to load the code libraries. This claim was interpreted as being directed to loading the machine control instructions contained in the libraries that are represented by the objects in the graphical representation of the system when the machine code is generated.

4. **Claim 17** is directed to: the step of monitoring or tracing the path of data flow and execution of the generated code by visually indicating activity in active objects in the network, however the meaning of this claim is unclear. This claim was interpreted as being directed to the ability to monitor the creation of the machine code as the code is created for each object in the system which would visually indicate activity of active objects in the system, those "active objects" being those objects whose source code is being generated.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. **Claims 1-7, 10,11, 14-17, 20-24, 26 and 17** are rejected under 35 U.S.C. 102(b) as being anticipated by Marmelstein (U.S. Patent Number 5,187,788), herein referred to as **Marmelstein**.

7. As to **Claim 1**, **Marmelstein** teaches: a method executed by a mechanical, electronic or computer system for generating machine control instructions, the method comprising the steps of: reading in a user input to select an object from a library of objects, wherein the objects consist of sets of machine control instructions for performing one or more functions **(column 10, lines 12-18 and column 17, lines 52-55)**; connecting the selected object to a network of objects consisting of those objects previously selected and connected by the user, including identifying the inputs and outputs of the selected object and connecting these inputs and outputs to the inputs and outputs of the other objects in the network **(column 17, lines**

55-58 and column 19, lines 24-32); generating machine control instructions using the instructions contained in the network of objects **(column 18, lines 53-55)**; updating the network of objects and the connections in the network to accurately reflect any changes made to the generated machine control instructions or to the network of objects **(column 33, lines 28-34, 40-47)**.

8. As to **Claim 2**, **Marmelstein** teaches: generating machine control instructions **(column 18, lines 53-55)** and updating the network of objects and the connections in the network to accurately reflect any changes made to the generated machine control instructions or to the network of objects **(column 33, lines 28-34, 40-47)**. It is concluded from the description in the specification that the user would only select the "Generate Ada" **(Figure 5, element 513)** option when they have completed constructing or modifying the network since the "Generate Ada" command produces source code for a completed APEX representation of the system.

9. As to **Claim 3**, **Marmelstein** teaches: the functions contained in the objects are used to generate the corresponding sets of instructions for inclusion in the generated machine control instructions **(column 3, lines 19-20)** whereby the direct mappings generate the corresponding set of Ada instructions.

10. As to **Claim 4**, **Marmelstein** teaches: the generated code consists of computer instructions to load the code libraries represented by the objects **(column 10, lines 15-18, column 18, lines 53-57)** wherein the objects selected point to code containing machine control instructions in a database, or library, and this code is read in and compiled when the Ada code is generated.

11. As to **Claims 5 and 23**, **Marmelstein** teaches: the user is a computer program **(column 2, lines 58-59)** wherein APEX is the computer program.

12. As to **Claim 6**, **Marmelstein** teaches: the machine control instructions are computer instructions belonging to an instruction set architecture **(column 7, lines 13-19)**, wherein the APEX program is run on a Sun 3/XXX Workstation, therefore, the Ada instructions generated by this program belong to the instruction set architecture utilized by this system.

13. As to **Claim 7**, **Marmelstein** teaches: wherein the machine control instructions consist of source code in a computer programming or scripting language **(column 2, lines 58-59)**.

14. As to **Claim 10**, **Marmelstein** teaches: the library of objects includes container objects that contain other objects or data **(column 17, lines 52-55)** wherein the objects (packages) contain data structures and the operations of these data structures.

15. As to **Claim 11**, **Marmelstein** teaches: the user input is generated by the manipulation of graphical depictions of objects on a computer or video display screen or monitor, said manipulation being

controlled by a computer mouse or a keyboard or some combination of a computer mouse and keyboard **(column 18, lines 8-14)**.

16. As to **Claim 14**, **Marmelstein** teaches: the user input consists of the movement and connection of physical objects in physical space corresponding to objects in the library **(column 18, lines 31-32)** wherein the object can be positioned on the screen, **(column 19, lines 24-32)** wherein the connection of physical objects are made, **(column 17, lines 52-55)** wherein packages contain data structures and operations on the data structures read in from the library **(column 17, lines 61-63)**.

17. As to **Claim 15**, **Marmelstein** teaches: the step of removing any number of objects from the network in response to user inputs **(column 33, lines 28-34)**.

18. As to **Claims 16 and 26**, **Marmelstein** teaches: the step of modifying existing connections of objects in the network in response to user inputs **(column 19, lines 35-37)**.

19. As to **Claims 17 and 27**, **Marmelstein** teaches: the step of monitoring or tracing the path of data flow and execution of the generated code by visually indicating activity in active objects in the network **(column 18, lines 55-57)** wherein all generated code is sent to the console screen for monitoring by the user.

20. As to **Claim 20**, **Marmelstein** teaches: the step of creating at least one new object of machine control instructions from the generated code **(column 6, line 66-column 7, line 4)**.

21. As to **Claim 21**, **Marmelstein** teaches: a method for constructing a high-level object model from generated machine control instructions, the method comprising the steps of: reading in a sequence of machine control instructions for performing one or more functions **(Figure 13, element 1310 and description)**; searching a library of objects for one or more objects that generate the sequence of machine control instructions read **(Figure 13, elements 1320-1370 and description)**; parsing each matched sequence of machine control instructions to determine the objects connected to the inputs and outputs of each matching object found in the library of objects **(column 11, lines 48-63)** wherein the inputs and outputs of connecting objects of the matching object found in the library; connecting each matched object found in the library of objects to the other objects in the high-level model found in the previous steps **(column 19, lines 24-32)**.

22. As to **Claim 22**, **Marmelstein** teaches: the original machine control instructions were generated from a source file by a compiler **(column 18, lines 53-57)** since the machine control instructions (Ada source code) was generated from a source file (APEX system representation).

23. As to **Claim 24**, **Marmelstein** teaches: the additional final step of generating machine control instructions from the high-level model **(column 18, lines 53-55)**.

Claim Rejections - 35 USC § 103

24. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

25. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

26. **Claims 8 and 25** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Marmelstein** as applied to **Claims 1 and 21** above, and further in view of Brender et al (U.S. Patent Number 5,339,422), herein referred to as **Brender**.

27. As to **Claims 8 and 25**, **Marmelstein** teaches compiling machine control instructions.

28. **Marmelstein** does not expressly teach the additional final step of translating or compiling the machine control instructions into another format of machine control instructions, wherein the format of the newly generated machine control instructions differs from that of the original machine control instructions

29. **Brender** teaches translating or compiling the machine control instructions into another format of machine control instructions, wherein the format of the newly generated machine control instructions differs from that of the original machine control instructions **(column 5, lines 12-23)** since in a multi-architecture environment, the implementation of subprogram or routine calls across domains involves different calling conventions in different architectures and translating or "jacketing" calls enables and facilitates cross-domain code execution with efficiency and essential transparency in the multi-architecture system **(column 2, lines 61-68)**.

30. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the final step of translating or compiling the machine control instructions into another format as taught in **Brender** to the code generating system as taught in **Marmelstein** since the translating of code to operate on different domains enables and facilitates cross-domain code execution with efficiency and essential transparency in a multi-architecture system **(column 2, lines 61-68)**. This ability to translate code to operate on different architectures would add more flexibility to the system as taught in **Marmelstein**.

31. **Claims 12 and 13** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Marmelstein** as applied to Claim 1 above, and further in view of Lithicum et al (U.S. Patent Number 6,714,213), herein referred to as **Lithicum**.

32. As **to Claims 12 and 13, Marmelstein** teaches the user inputs include the manipulation in physical space of virtual representations of the objects **(column 10, lines 12-13** "selection of objects", **column 18, lines 31-33,** "position the package"), provided by a user interface **(Figure 1, elements 10, 20 and 30)**.

33. **Marmelstein** does not expressly teach this user interface provided by a virtual reality system including a force-feedback or haptic interface.

34. **Lithicum** teaches the virtual reality system including a force-feedback or haptic interface such that when the user moves an object that is proximately close to another object, haptic feedback forces provide resistance against the user's attempted manipulation of the movable object that would result in a contact or collision between objects **(column 2, lines 56-64)**.

35. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the user interface as taught in **Marmelstein** with the virtual reality system as taught in **Lithicum** since a haptic interface will provide resistance when two objects are moved in close proximity to each other and not allow the user to place objects too close or on top of one another as taught in **Lithicum (column 2, lines 56-64)**.

36. **Claims 9,18,19 and 28** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Marmelstein** as applied to **Claims 1 and 21** above, and further in view of Zink et al (U.S. Patent Number 6,738,964), herein referred to as **Zink**.

37. As to **Claim 9, Marmelstein** teaches a library of objects **(column 10, lines 16-18)**.

38. **Marmelstein** does not expressly teach the library of objects including primitive operators for mathematical operations.

39. **Zink** teaches a graphical development system that develops applications for digital signal processors using a library of development components that the user can choose from **(column 1, lines 47-49, column 2, lines 31-33, column 4, lines 35-38, 43-47)**. **Zink** further teaches that these components are self-contained deployable units of primary functionality and primary functionality refers to mathematical functions (column 4, line 64-column 5, line 1).

40. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the objects in the library as taught in **Marmelstein** with the objects including primitive operators for mathematical operations as taught in **Zink** if the system as taught in **Marmelstein** is used to develop machine control instructions to run on a digital signal processor as the system taught in **Zink (column 1, lines 48-50)** since a program that runs on a digital signal processor includes these mathematical functions in order to properly function in the desired manner.

41. As to **Claims 18, 19 and 28**, **Marmelstein** teaches user inputs provided by provided by a user interface **(Figure 1, elements 10, 20 and 30)** and updating a network of objects **(column 33, lines 28-34, 40-47).**

42. **Marmelstein** does not expressly teach the user inputs are provided by at least one user over a network connection or said step of updating the network of objects includes updating the network of objects to reflect changes made by at least one remote user over a network connection.

43. **Zink** teaches a graphical development system that includes a graphical user interface that may be accessed via a local area network, the internet, or other remote means for receiving user commands and to provide feedback or results to the user **(column 3, lines 26-31)**.

44. It would have been obvious to one of ordinary skill in the art at the time the invention was made that the user interface as taught in **Marmelstein** could be accessed via a network as taught in **Zink** and doing so would provide more flexibility to users by allowing them access the system from a remote location to provide user inputs which would include updating the network of objects.

Conclusion

45. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

46. Keller et al (U.S. Patent Number 6,212,672) teaches a software development tool using graphical methods to design the desired program.

47. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary C Hogan whose telephone number is 703-305-7838 or 571-272-3712 beginning mid-October. The examiner can normally be reached on 7:30AM-5PM Monday-Friday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Teska can be reached on 703-305-9704. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mary C Hogan
Examiner
Art Unit 2123

JEAN R. HOMERE
PRIMARY EXAMINER